

**METHOD OF MAKING A SPIN VALVE SENSOR WITH A FREE LAYER
STRUCTURE SPUTTER DEPOSITED IN A NITROGEN ATMOSPHERE**

ABSTRACT OF THE DISCLOSURE

A method is disclosed for making a spin valve sensor (200) of a magnetic read head. The method includes the steps of forming a ferromagnetic pinned layer structure (204) that has a magnetic moment, forming a pinning layer exchange coupled to the pinned layer structure (204) for pinning the magnetic moment of the pinned layer structure (204), forming a free layer structure (206), forming a nonmagnetic electrically conductive spacer layer (202) between the free layer (206) and the pinned layer structure (204) and the forming of the free layer structure (206) including the step of sputter depositing at least a first free layer (226) composed of cobalt iron directly on the spacer layer in a nitrogen atmosphere.

Fig. 10



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